

**Solving Business Problems with Statistics**

**Course Number:** STAT-104  
**Duration:** 3 days

**Overview**

Accelebrate's Solving Business Problems with Statistics training course teaches participants how to apply appropriate statistical procedures and models to answer business questions and then effectively communicate impact to stakeholders.

**Prerequisites**

Students have access to Microsoft Excel and are familiar with writing calculations and formulas within Excel.

**Materials**

All students receive comprehensive courseware.

**Software Needed on Each Student PC**

* Microsoft Excel
* Internet access
* Related data and lab files that Accelebrate will provide

**Objectives**

Students will leave the course able to use Excel to build statistical models that answer questions such as:

* What's the relationship between a variable and an outcome?
* If I adjust X, what will be the impact on Y?  Are there natural limits I should be aware of?
* What's coming next?  Are we going up or down and by how much?
* Why are we going up or down?  How impactful is each variable?  (In other words, what should I focus on first?)
* Are there any unusual outliers?  What caused those?  Do I need to do something about this?
* How likely is any given idea or decision or campaign to be successful? (i.e., logistic regression)
* Did any given change or decision make a material business impact?

**Outline**

* Introduction
* Why Use Statistics?
* Installing the Data Analysis Tool Pack add-in for Excel
* Exploring and Visualizing Data
  + Types of variables and how to visualize each
* Descriptive Statistics
  + Uses for specific measures and how to visualize
    - Samples vs. populations
    - Confidence Intervals
    - Average, median, standard deviation, quartiles & percentiles
    - Looking at the shape of the data and the impact of outliers
    - Cautions and common pitfalls (e.g. Anscombe’s Quartet)
  + Dealing with bad data and ensuring it’s reliable for good decisions
* Overview of Probability
* Method for Creating Predictive Models
* How to Choose an Appropriate Model
* Regression
  + Correlation
  + Linear Regression
    - When to use it
    - How to interpret meaningfully
    - For nonlinear data
  + Multivariate
* Logistic Regression
* ANOVA
  + t-Test
  + One-Way ANOVA
  + Two-Way ANOVA
* Chi-Square
* Time Series & Forecasting
* Conclusion